

REMARKS

Claims 1-41 are pending in the present application. Claims 19, 20 and 34-41 have been withdrawn from consideration. By this response, claims 1 and 21-33 are cancelled, claims 2, 3, 5, 7, 11, 12, 13, 16, 17, and 18 are amended, and new claims 42-56 are added. Accordingly, following entry of this amendment, claims 2-20 and 34-56 will be pending. No new matter is added by this amendment. Support for the amended and new claims is found in the originally filed claims and the specification, as further discussed below. *See, e.g.*, specification at page 34, lines 22-28; page 4, lines 18-24; page 12, lines 3-16; page 12, lines 13-16; page 121, lines 3-16; Table 1; Example 1 (pages 45-46); Example 2 (pages 45-49); *see also* originally filed claims 1, 2, and 21-33.

Dependent claims 3, 5, and 7 are amended to delete reference to cancelled claim 1. Claims 21-33 are cancelled. New claims 41-43 are similar to cancelled claims 21-23, but have been rewritten to delete step (a) of each claim (which references the method of now-cancelled claim 1); recite former step (b) as the first limitation (i.e., "comparing a molecular profile of the test chemical composition with a molecular profile of a chemical composition"); and recite that the molecular profile of the test chemical composition is created by a method comprising "i) contacting an isolated population of mammalian mesenchymal stem cells (MSCs) with the test chemical composition; and ii) recording alterations in gene expression or protein expression in the mammalian MSCs in response to the test chemical composition to create a molecular profile of the test chemical composition" (i.e., the steps recited in previously pending claim 1). Support for this amendment is found in originally filed claims 1 and 21-23, and in the specification at, e.g., page 4, lines 11-13, 18-20, and 25-27. New dependent claims 47-56 recite limitations that correspond to the limitations in previously pending claims 24-33. Support for these claims is found in originally filed claims 24-33. New claims 45 and 46 recite a method for assessing toxicity of a test chemical and a method for prioritizing drug development of a test chemical, respectively. Support for these claims is found in the specification, e.g., at page 3, lines 20-21;

page 10, lines 19-21; page 12, lines 13-16; page 34; lines 25-28; page 14, lines 9-14; page 10, lines 21-24; page 35, lines 3-6; *see also* originally filed claims 1, 2, and 21-23.

With respect to all amendments and cancelled claims, Applicant has not dedicated or abandoned any unclaimed subject matter and moreover have not acquiesced to any rejections and/or objections made by the Patent Office. Applicant reserves the right to pursue prosecution of any presently excluded claim embodiments in future continuation and/or divisional application.

Interview

Applicant thanks Examiner Sullivan and his supervisor for extending the courtesy of the helpful telephone interview held August 1, 2003 with applicant's representatives, during which the contents of this amendment were discussed. This response reflects the results of that interview.

Rejections under 35 U.S.C. § 112, second paragraph

Claims 2-18 and 21-33 are rejected under 35 U.S.C. 112, second paragraph, as being allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully traverses this rejection.

Applicant respectfully submits that the meaning of the phrase "chemical composition having predetermined toxicity" is clear in view of the knowledge of one of skill in the art and the disclosure in the specification. However, as suggested by the Examiners and to expedite prosecution, claims 2, 11, 12, 13, and 16 have been amended to delete the phrase "having predetermined toxicity". As suggested by the Examiner, claim 2 has been further amended to add the phrase "wherein the library of profiles is used to correlate with a known toxic property of the at least two chemical compositions". New claims 42-46 also recite this phrase. Support for the amendment is found in the claim as originally filed, and in the specification at, e.g., page 12,

lines 13-16; page 121, lines 3-16; Table 1; Example 1 (pages 45-46); Example 2 (pages 45-49). The Examiners indicated at the interview that this amendment would obviate this rejection. Accordingly, withdrawal of this rejection is respectfully requested.

Rejection under 35 U.S.C. § 102

Ji, et al.

Claims 1 and 5 are rejected under 35 U.S.C. 102(a) as allegedly anticipated by Ji et al. (published online April 14, 2000) *J. Bone Mineral Metab.* 18:132-139. By this amendment, claim 1 canceled without prejudice or disclaimer. Claim 5 has been rewritten to delete reference to claim 1, such that claim 5 now depends only from claim 2. Because claim 2 was not rejected over the Ji reference, claim 5 as amended is not anticipated by the Ji reference. Accordingly, this rejection is moot. Withdrawal of this rejection is respectfully requested.

Church

Claims 1, 2, 7 and 10 are rejected under 35 U.S.C. 102(b) as allegedly anticipated by Church et al. (May 1999) *Calc. Tissue Int.* 64:S54. Applicant respectfully traverses this rejection.

As noted above, claim 1 has been cancelled, and claim 7 has been amended to depend only from claim 2. Claim 2 has been amended to recite that the library of molecular profiles of chemical compositions is "for use in a method of ranking or typing toxicity" and "wherein the library of profiles is used in a method of typing or ranking toxicity". Support for this amendment is found in the specification at, e.g., page 34, lines 22-28; page 4, lines 18-24; page 12, lines 3-16.

By contrast, Church does not teach the use of a library of molecular profiles in a method of typing or ranking toxicity. Church relates to differentiation of MSCs. Specifically, Church discloses testing the effect of certain bioactive proteins (i.e., bone morphogenic protein antagonists) on the osteogenic differentiation of MSCs. Church neither teaches nor suggests: (a)

methods for typing or ranking toxicity; (b) the use of MSCs in methods for typing or ranking toxicity; or (c) the use of a library of molecular profiles in methods for ranking or typing toxicity. Accordingly, Church cannot anticipate the present claims. Withdrawal of this rejection is respectfully requested.

Bruder

Claims 1-4, 7, 8 and 10 are rejected under 35 U.S.C. 102(a) as allegedly anticipated by Bruder et al. (1998) U.S. Patent No. 5,736,396 (made of record in the Information Disclosure Statement filed March 20, 2002). Applicant respectfully traverses this rejection.

As noted above, claim 1 has been cancelled, claims 3 and 7 have been amended to depend only from claim 2, and claim 2 has been amended to recite that the library of molecular profiles of chemical compositions is "for use in a method of ranking or typing toxicity" and "wherein the library of profiles is used in a method of typing or ranking toxicity".

By contrast, Bruder does not teach or suggest a library of molecular profiles that is used in a method of typing or ranking toxicity. Bruder generally relates to methods for inducing differentiation of MSCs. Specifically, Bruder discloses contacting MSCs with bioactive factors, such as the differentiation factor BMP, whereby the differentiation of the MSCs is tested and characterized. Use of the differentiated cells for tissue regeneration or repair is also suggested. However, Bruder neither teaches nor suggests: (a) methods for typing or ranking toxicity; (b) the use of MSCs in methods for typing or ranking toxicity; or (c) the use of a library of molecular profiles in methods for ranking or typing toxicity. Accordingly, Bruder cannot anticipate the present claims. Withdrawal of this rejection is respectfully requested.

CONCLUSION

Applicant has, by way of the amendments and remarks presented herein, made a sincere effort to overcome rejections and address all issues that were raised in the outstanding Office Action. Accordingly, reconsideration and allowance of the pending claims are respectfully requested. If it is determined that a telephone conversation would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the unlikely event that the fee transmittal is separated from this document and the Patent Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 441472000400. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Respectfully submitted,

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